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**47th Annual Conference
(JOS 2022)**

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ECONOMIC ANALYSIS OF SMALL-SCALE SHEEP PRODUCTION IN FUNTUA LOCAL GOVERNMENT AREA, KATSINA STATE, NIGERIA

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Abstract

The study investigated the economic analysis of sheep production in Funtua Local Government in Katsina State, Nigeria. Multistage sampling techniques was used to collect primary data for the study. Structured and pretested questionnaires were used to elicit information from 120 respondents. Regression model and Net farm income were used to analyze the data. Majority (67%) of the sheep farmers had a mean farming experience of 10 years, and 55% were members of cooperative society. Age and household size were positively significant ($P < 0.05$). Access to credit and extension contacts were positively significant ($P < 0.05$). These means that access to credit and extension contacts increase the sheep production in the study area. The cost-returns of sheep production indicate that the average selling price was ₦17, 500. The rate of return to investment was 0.61. This implies that for every naira invested on sheep production there was a return to investment of 61 kobo. The study concluded that sheep production was profitable in the study area. It is therefore recommended that Governmental and non-governmental organisations must designed a favourable training workshop to encourage the sheep farmers.

Keywords: Economics, Small-Scale, Sheep-Production, Funtua, Katsina-State.

INTRODUCTION

Livestock industry plays an important economic and socio-cultural roles for the wellbeing of rural households. In Nigerian inadequate protein intake is evident in the diet of the people when compared with the most recent protein recommendations by the FAO (2018). This is well pronounced in the protein intake of adolescent girls, pregnant and lactating women. Most of the assessed Nigerian plant-based staple foods were of low protein quality and predominantly lacked the amino acid lysine. ([Adedotun, Jan, Urszula](#) and [Alida](#), 2020)

Sheep have been important sources of animal protein in Nigeria and most people are engaged in sheep production particularly to improve their standard of living. In Nigeria, sheep production suffered from neglect in spite of their contributions to the national and household welfare. Nigeria has the potential to produce meat from ruminant animals to meet up the animal protein requirement for the people. Ruminant animals are reared in large quantity in Nigeria especially in the northern part, in 2019 National Agricultural Sample Survey indicated that Nigeria reported an estimated 19.5 million cattle, 72.5 million goats, 41.3 million sheep and 28,000 camels.

This indicates that ruminants constitute the major source of animal protein. According to FAOSTAT (2018), sheep numbers were in excess of one billion (1,078,200,000) while 861,900,000 goats were produced. Among the challenges of production, feed shortage constitutes the greatest of them.

Enechi and Ajayi (2012) Opined that Nigeria like many other developing countries is facing shortage of dietary animal protein. The consequence of this has led to an increasing incidence of high infant mortality, low resistance to diseases, poor growth and development, mental retardation which reduces the quality and quantity of available manpower in the labour market. The situation also resulted in declined per capital production, high and rising food prices, increasing food import and a growing deterioration in the nutritional status of farming household. The broad objective of this study is to assess the economics of sheep production in Funtua Local Government Area and specifically to: examine the sheep production system, its profitability and the factors influencing sheep production in Funtua local government area of Katsina state.



Materials and Methods

The study was carried out in Funtua Local Government Area (LGA), Katsina State. Funtua is located between latitude 11° 32' N and longitude 7° 19' E of the equator. Funtua has a land area of about 448Km². It has a population of about 964,360 according to 2021 estimates. Multistage sampling techniques was used to collect data. In stage one, simple random technique was used to select six communities from the LGA. In stage two, simple random technique was used to select two villages from each of the communities to give a total of twelve (12) villages. The third stage involves random selection of ten (10) respondents (farmers) from each village to give a total of one hundred and twenty 120 respondents. Primary data was obtained from respondents who were into sheep production activities in the study area through interviews with the aid of well-structured questionnaires. Households producing sheep were visited and the producers of sheep were interviewed. The fixed cost used in computing the net farm income was calculated using the straight line method of depreciation

Regression Analysis.

The explicit functional forms of the double log regression model is

logY=alpha + beta_1 logX_1 + beta_2 logX_2 + beta_3 logX_3 + beta_4 logX_4 + beta_5 logX_5 + beta_6 logX_6 + beta_7 logX_7 + beta_8 logX_8 + beta_9 logX_9(1)

Where: Y=No of sheep produced (#), X_1 = Farmers' Age (year) , X_2 = Hosehold size X_3(#), X_3 = Sex (male = 1, female = 0), X_4 = Education (years), X_5 = Farmers' experience (years), X_6 = Credit Access (access = 0, not access = 0) X_7 = Income (N) X_8_2 = cooperative membership member = 1, non - member = 1), X_9 = Extension contact (contact = 1 no contact = 0)

Result and Discussion

Table 1: Socio Economic Characteristic of Respondents

Table with 4 columns: Variables, Frequency, Percentage, Mean. Rows include Age (21-30, 31-40, 41-50, 51-60, 61-70), Household size (<5, 5-10, 11-15, >15), Years of experience (1-5, 6-10, 10-15, >15), Gender (Male, Female), Extension Contact (Yes, No), and Level of Education.



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Quranic	98	81.67
Primary	14	11.67
Secondary	5	4.16
Tertiary	3	2.50

Field survey 2021

Socio-economic Characteristics

Results of data analysis presented in Table 1 revealed that 53.3% of the sheep farmers had their ages between 31-40 years while 6.7% of the respondents were within the age range of 21-30 years. The mean age was 43years. The result equally showed that majority (95.0%) of the respondents were males, while only 5.0% were females. This implies that there were more male sheep farmers in the study area.

Farmers’ experience showed that 60.0% of the small-scale sheep farmers had years of experience between 6-10 years while only 9.2% of them had years of experience above 15 years. Also, the result showed that majority (90.0%) of the respondents had contact with extension agent while only 10.0% of them do not have contact with extension agents in the study area. As indicated also in Table 1, 60.0% of the small-scale sheep farmers had access to credit, while 40.0% had no access to credit. This implies that most of the sheep farmers in the study area have access to credit which will promote small scale sheep production in the study area. . The result presented in the table 1 clearly shows that majority of the farmers had mean of seven (7) people. This implies that the farmers have smaller household sizes compared with those farmers with more than ten household size. The reason is that households with smaller sizes attached less importance to food security than households with larger size (Virek, 2012).

Education plays an important role in agricultural operations. Education is always valued as a tool of independence freeing one-self from ignorance and enables the person to do non-traditional roles (Kumar and Roy,2013). This result further shows that majority of 81.67% of the respondents obtained qur'anic education. This implies that majority of the farmers are not well educated in the western educational system hence can reduce sheep production output.

Profitability Analysis

Profitability is the primary aim of all business ventures. Without profit the business will not survive in the long run. The result of the profitability analysis of sheep production activities showed that, the total quantity of sheep were 698, while the average selling price for each sheep was ₦17,500. The total variable cost and average total variable cost are ₦160,138 and ₦163,400 respectively while the average fixed cost ₦3,262.

Factors Influencing Sheep Production

Table 2 shows that F-statistics value (0.0024), was significant at (P<0.01). This is an indication that the model was a good fitted. The value of the coefficient of multiple determinations (R²) was 0.52. This shows that 52% variability of sheep production was accounted for by independent variables. The table further shows the regressor’s coefficient which indicates the elasticity values. The coefficient of credit (0.9819) extension contact (0.3198) Household size (0.6851) and Age (0.1599) were positive and statistically significant (P<0.05). This implies that an increase in these inputs would increase sheep output by 0.9819, 0.3198, 0.6851 and 0.1599 respectively

Four variables were statistically significant (P≤ 0.05). The age of the farmers was positively significant (P< 0.05). This implies that the older farmers were more productive in sheep production in the study area. This can be plausible in a situation where the younger ones are not challenged in farming activities. However, the results support the findings of Vivek, (2012 which showed that farmers’ participation in sheep production activities is directly related to their age. He argued further that the older the farmers become the more experienced and engagement they tend to be in their participation for their sheep production.



Credit access was positively significant ($P < 0.05$). This shows that credit disbursement to the farmers in the study area is functioning and effective. This will enable the farmers to have access to credit to procure input and also increase the size of their farming. Extension contact was positively significant ($P < 0.05$). This leads to increase in sheep production in the study area. The result portrays the effectiveness of agricultural extension delivery in the study area

This was in agreement with the findings of Lawal (2012) who argued that the greater the inspection and advisory service of the extension personnel to the farmers the more they help in boosting their production.

Table 2. Regression Analysis of Sheep Production

Variables		Coefficients	standard error	t-value	p-value
Age	(X ₁)	0.1599	0.06174	2.59	0.011**
Household size	(X ₂)	0.6851	0.2903	2.36	0.020**
Sex	(X ₃)	0.8179	1.8179	-0.46	0.645
Education	(X ₄)	0.2364	0.9850	0.24	0.807
Experience	(X ₅)	0.2258	0.1547	1.46	0.146
Credit Access	(X ₆)	0.9809	0.3924	2.50	0.014**
Income	(X ₇)	0.1946	0.3041	0.64	0.525
Cooperative	(X ₈)	-0.1345	0.8406	0.16	0.872
Extension Contact	(X ₉)	0.3198	0.1154	2.77	0.007**
Constant		1.5500	0.3150	4.92	0.009*

$R^2 = 0.52$; Adj. $R^2 = 0.49$; Prob>F = 0.0024; * 10%, ** 5% and *** 1% level of significance

Source: Data Analysis 2021

Conclusion and Recommendations

The study was conducted in rural communities of Funtua Local Government Area of Katsina State to analyze the Economics of Sheep production. Sheep production is profitable in the study area because the rate of return to investment was 0.61. This implies that for every naira invested on sheep production there was a return to investment of 61 kobo. The study concluded that sheep production was profitable in the study area. It is therefore recommended that Governmental and non-governmental organisations must designed a favourable training workshop to encourage the sheep farmers. Agricultural policies on extension delivery system approach should be upgraded to meet challenges of modern farming. Enforcement of laws and regulations governing provision of public veterinary services.

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